IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of	:	Customer Number: 46320
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Douglas DAVIS et al.	:	Confirmation Number: 3998
	:	
Application No.: 10/612,613	:	Group Art Unit: 2113
	:	
Filed: July 1, 2003	:	Examiner: E. Mehrmanesh
	:	
For: CHECKPOINTING AND RESTARTING LONG RUNNING WEB SERVICES		

REPLY BRIEF

Mail Stop Appeal Brief - Patents
Commissioner For Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

        This Reply Brief is submitted under 37 C.F.R. § 41.41 in response to the EXAMINER'S

ANSWER dated June 25, 2007.

        The Examiner's response to Appellants' arguments submitted in the Appeal Brief of

February 16, 2007, raises additional issues and underscores the factual and legal shortcomings in

the Examiner's rejection.   In response, Appellants rely upon the arguments presented in the

Appeal Brief of February 26, 2007, and the arguments set forth below.

Claim 1

On pages 8-11 of the Appeal Brief, Appellants reproduced previously-presented arguments by Appellants and addressed the Examiner's response to these arguments. Appellants concluded, for the reasons stated in the Appeal Brief, that Doyle fails to identically disclose the claimed "restore said stored checkpoint data to a replacement for failed ones of the individual Web service instance invocations," as recited in claim 1.

The Examiner addressed these arguments on pages 10-12 of the Examiner's Answer. As to the Examiner's comments contained in the last full paragraph of page 10, the paragraph spanning pages 10 and 11, and the first full paragraph on page 11, Appellants do not disagree that Doyle discloses storing optimization metrics 180. However, whether or not Doyle discloses optimization metrics (i.e., allegedly corresponding to the claimed checkpoint data) was not part of Appellants' prior arguments. As such, these assertions by the Examiner are not relevant to the issues raised by Appellants.

In the last full paragraph on page 11 of the Examiner's Answer, the Examiner asserted the following:

> The Appellant argues that Doyle fails to teach, "restoring checkpoint data to a replacement for failed ones of the individual Web service instance invocations." The Examiner respectfully disagrees and would like to point out that to page 4, paragraph [0043], wherein Doyle discloses, "Beginning in block 310, a node failure can be detected within the grid coordinator. In block 320, each service instance residing within the failed node can be identified. In block 330, one or more replacement nodes can be further identified. **In block 340, the logged metrics for each of the service instances in the failed node can be retrieved.** Alternatively, for each instance of a service hosted in the failed node, **logged metrics for multiple instances across other nodes for the service can be retrieved so as to smooth anomalous events in any one instance of the service.** In any case, platform metrics for each of the identified replacement nodes can be identified in block 350." (emphasis in original)

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The Examiner further asserted the following in the first and second full paragraphs on page 11 of

the Examiner's Answer:

> Noting figure 2, Doyle discloses the optimization logic 220 initially can determine whether services 260A, 260C hosted within the failed node 210Y can be **wholly re-instantiated** in one of the identified replacement nodes 240A, 240B in a manner in which the services 260A, 260C **can continue to operate** at a performance level previously attained in the failed node 210Y (page 4, paragraph [0040], lines 1-7).
> As stated above, Doyle's failover process includes detecting the faulty node and providing continuous operation of the failed service instances by retrieving the checkpoint data (i.e. logged metrics) of the failed service instances to enable their full resumption in the replacement nodes based upon the collected metrics (page 2, paragraph [0012]). In order to maintain the **continuous operations** of the failed service instances and to fully re-instantiate the failed service instances, it is essential **to provide the previously stored checkpoint data** in the replacement invocations (**i.e. restore the checkpoint data**) to enable restarting of the service instances from the previously stored state of their operations prior to the failure. Therefore Doyle discloses restoring checkpoint data to a replacement for failed ones of the service instance invocations. (bold in original, underline added)

The "meat" of the Examiner's analysis is found in the above-underlined passage. The

Examiner's analysis, however, suffers from two fatal defects. First, the Examiner's analysis

ignores the plain teachings of Doyle. Second, the Examiner's analysis is essentially an unstated

inherency argument that lacks factual support.

As noted by Appellants on page 10 of the Appeal Brief, Doyle does not teach that the

optimization/service metrics are restored to a replacement for a failed one of individual Web

service instance invocations, as claimed. Instead, referring to lines 1-7 of paragraph [0045] of

Doyle, the optimization/service metrics are used to select the replacement nodes. Completely

absent from Doyle is a teaching that the optimization data is restored to the replacement nodes.

Reference is also made to the last line in paragraph [0044], which states "the metrics for

each service can be retrieved and compared to the metrics for each potential replacement node"

(emphasis added). Thus, whereas the claimed invention is directed to storing checkpoint data

and then restoring the checkpoint data to a replacement, the teachings of Doyle are directed to storing optimization/service metrics and based upon those metrics, selecting a replacement node. Moreover, the "metrics" in Doyle do not have to be restored since these "metrics" already exist in the replacement node. Otherwise, the stored metrics could not be compared to the metrics for potential replacement nodes, as taught by Doyle.

In this regard, Appellants note a discussion of what constitutes "optimization metrics 180" is found in paragraph [0036] of Doyle. Upon reviewing the example optimization metrics taught by Doyle, Appellants note most, if not all, of these metrics are inherent to the operation of the device (i.e., node) upon which the individual service instances 130A, 130B run. A discussion of what constitutes "service metrics 230" is found in paragraph [0038] of Doyle, and these service metrics 230 are similar to the optimization metrics 180 in that most, if not all, of these metrics are inherent to the operation of the node upon which the service instances rune. As claimed, the checkpoint data is restored to a replacement. Since the optimization/service metrics of Doyle are inherent to the replacement, they cannot be "restored" to the replacement.

The above-identified underlined passage by the Examiner is an unstated inherency argument. Inherency may not be established by probabilities or possibilities. The mere fact that a certain thing <u>may</u> result from a given set of circumstances <u>is not sufficient</u> to establish inherency.[1] To establish inherency, the <u>extrinsic evidence</u> must make clear that the missing element must <u>necessarily be present</u> in the thing described in the reference, and that the necessity

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[1] <u>In re Rijckaert</u>, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993) (reversed rejection because inherency was based on what would result due to optimization of conditions, not what was necessarily present in the prior art); <u>In re Oelrich</u>, 666 F.2d 578, 581-82, 212 USPQ 323, 326 (CCPA 1981).

of the feature's presence would be so recognized by persons of ordinary skill.[2] Furthermore,

reference is made to <u>ex parte Schricker</u>,[3] in which the Honorable Board of Patent Appeals and

Interferences stated the following:

> However, when an examiner relies on inherency, it is incumbent on the examiner to point to the "page and line" of the prior art which justifies an inherency theory. <u>Compare</u>, <u>In re Rijckaert</u>, 9 F.3d 1531, 1533, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993) (when the PTO asserts that there is an explicit or implicit teaching or suggestion in the prior art, it must indicate where such a teaching or suggestion appears in the prior art); <u>In re Yates</u>, 663 F.2d 1054, 107, 211 USPQ 1149, 1151 (CCPA 1981).

The Examiner, however, did not discharge that burden of indicating where the prior art teaches

that "it is essential to provide the previously stored checkpoint data in the replacement

invocations ... to enable restarting of the service instances from the previously stored state of

their operations prior to the failure."

Moreover, upon reflecting on certain of the optimization/service metrics described, it is

readily apparent that not only is <u>not</u> essential to restore these certain optimization metrics, some

of these optimization metrics cannot be restored. For example, "cost per unit of performance" is

not essential to enable restarting of the service instance, and Appellants are entirely unclear how

such an optimization/service metric could be "restored." As noted above, this optimization/

service metric is likely inherent to the node upon which the service instance runs. Another

example is "revenue per unit of performance." Not only is this optimization/service metric not

essential to enable restarting of the service instance, Appellants are also unclear as to how this

optimization /service metric could be "restored."

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[2] <u>Finnegan Corp. v. ITC</u>, 180 F.3d 1354, 51 USPQ2d 1001 (Fed. Cir. 1999); <u>In re Robertson</u>, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999); <u>Continental Can Co. USA v. Monsanto Co.</u>, 20 USPQ 2d 1746 (Fed. Cir. 1991); <u>Ex parte Levy</u>, 17 USPQ2d 1461 (BPAI 1990).
[3] 56 USPQ2d 1723, 1725 (BPAI 2000).

Another example of an optimization/service metric is "minimum resources required" or "operating system requirements." Appellants conceded that a particular service instance may require this optimization/service metric in order to restart the service instance. However, as previously discussed, the replacement node is selected based upon a comparison of the metrics for each service to metrics for each replacement node. Thus, the metrics for each replacement node <u>already exist</u>, and therefore, do not require to be "restored," as claimed. Therefore, notwithstanding the lack of factual support for the Examiner's implied inherency argument, it is readily apparent that it is not necessary (i.e., inherent) for the optimization metrics to be "restored" to enable restarting of the service instance. Thus, the Examiner has not established that restoring the stored checkpoint data to a replacement for failed ones of the individual Web service instance invocations is inherently disclosed by Doyle.

On pages 11-13 of the Appeal Brief, Appellants reproduced previously-presented arguments by Appellants and addressed the Examiner's response to these arguments. Appellants concluded, for the reasons stated in the Appeal Brief, that Doyle fails to identically disclose the claimed "cleanup logic programmed to removed said stored checkpoint data for concluded, non-failed ones of the individual Web service instance invocations," as recited in claim 1.

The Examiner addressed these arguments on pages 12-14 of the Examiner's Answer. The main part of the Examiner's arguments are found in the last full paragraph on page 13 and the paragraph spanning pages 13 and 14 of the Examiner's Answer and are reproduced below:

> The Appellant argues that Doyle fails to teach the cleanup and the removing of the stored checkpoint data for concluded service instances. The Examiner respectfully disagrees and states that to the contrary, <u>Doyle's dynamic lifetime management of service instances and the dynamic</u>

metrics storage **necessitates** <u>the cleanup and the removing of the stored checkpoint data for concluded service instances</u>. As stated above Doyle discloses the change of the stored metrics due to the fact that Web services can be instantiated, maintained and destroyed dynamically.

In light of the specification with respect to the dynamic lifetime management of the service instances and Doyle's dynamic metrics storage of the collected metrics as a part of the above dynamic lifetime management of the service instances (i.e. keeping track of the status of the service instances), it would be apparent that the regular updating (refer to the above provided definition) of the stored metrics (i.e. checkpoint data) would keep track of the status of the service instances (i.e. instantiated, maintained, destroyed) by overwriting (i.e. removing) the older non-useable data (i.e. data relating to the concluded service instances) to enable the failover process to provide the continuous operation and to fully re-instantiate the failed service instances as disclosed by Doyle. Therefore Doyle discloses the cleanup and the removing of the stored checkpoint data for concluded service instances. (emphasis added)

Referring to the underlined-portion above, the Examiner again makes a factually-unsupported inherency argument. The Examiner asserts that Doyle's dynamic lifetime management of service instances <u>necessitates</u> the removal of the stored checkpoint data, but the Examiner has failed to provide any factual support for this evidence.

Appellants can easily foresee a situation in which the optimization/service metrics could be maintained (without deletion), as part of a permanent record-keeping process, for a particular service instance, even after the service instance has concluded. This information could then be used, for example, to compare how the optimization/service metrics for a service instance varies based upon different instantiations of the service instance. Although this is but one example in which removal of the data is not necessary, as alleged by the Examiner, Appellants are not even required to set forth such an example. Instead, the case law requires that the Examiner produce extrinsic evidence that clearly establishes the missing element must necessarily be present in Doyle, and that the necessity of the feature's presence would be so recognized by persons of ordinary skill. The Examiner, however has not met this burden.

In the first full paragraph on page 13 of the Examiner's Answer, Appellants also note that the Examiner relied upon lines 11-14 of paragraph [0020], which states that "it is expected that

metrics will change over time." Notwithstanding whether or not the metrics will change over time, the Examiner has failed to establish that the metrics will be deleted.

In the first two full paragraphs on page 13 of the Examiner's Answer, the Examiner also relied upon lines 16-20 of paragraph [0036] and a definition of the word "update" to assert that the optimization metrics are updated and updated means "to change a system of a data file to make it more current." In this regard, Appellants note that interpreting the teachings of the prior art is not the same as a claim construction, in which the Examiner can set forth a broadest reasonable interpretation. Since paragraph [0036] is not clear as to exactly what is meant by "updating," and since data can be added to a file, yet old data can be retained, then the updating by Doyle cannot be read to necessarily mean removal of stored data. Appellants also note that the claimed invention is directed to removing "stored checkpoint data for concluded, non-failed ones." In contrast, the "updating" disclosed by Doyle is done with services instances that have not concluded. Thus, this passage is not relevant to the claimed limitations, which are directed to removing stored checkpoint data for concluded, non-failed ones of individual Web service instance invocations.

Claim 3

On pages 13 and 14 of the Appeal Brief, Appellants reproduced previously-presented arguments by Appellants and addressed the Examiner's response to these arguments. Appellants concluded, for the reasons stated in the Appeal Brief, that Doyle fails to identically disclose the

claimed "storing a state object" and "providing said state object to a replacement Web service instance," as recited in claim 3.

The Examiner addressed these arguments on pages 14 and 15 of the Examiner's Answer. Specifically, the Examiner asserted the following:

> As per claims 3 and 14, the Appellant argues that Doyle does not teach the claimed "storing a state object" and providing said state object to a replacement Web service instance". The Examiner respectfully disagrees and states that the state object of a service instance provides information that describes the state of the service instance, which can be used in a failover system. Doyle's figure 1 shows a Grid Coordinator 150, which contains the Fail-over Logic 170 and a store of Optimization Metrics 180 (page 3, paragraph [0036], lines 1-4).
>
> Doyle discloses that the Optimization Metrics 180 can include a listing of various static and dynamic parameters and measurements associated with the operation of the individual service instances 130A, 130B (page 3, paragraph [0036], lines 4-7). Doyle further discloses of the dynamic storing of the collected metrics "the metrics can be logged dynamically during the operation of each service. Thus, it is expected that the metrics will change over time." (page 2, paragraph [0020], lines 11-14). Therefore, the stored metrics as disclosed by Doyle can include a dynamically specified state of the service instances (i.e. state object).

Although the Examiner addressed the claimed "storing a state object," the Examiner's response is completely silent as to the claimed "providing said state object to a replacement Web service instance." Therefore, Appellants maintain that the Examiner has failed to establish that Doyle identically discloses all of the claimed limitations recited in claim 3.

For the reasons set forth in the Appeal Brief of February 16, 2007, and for those set forth herein, Appellants respectfully solicit the Honorable Board to reverse the Examiner's rejection under 35 U.S.C. § 102.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 09-0461, and please credit any excess fees to such deposit account.

Date: August 27, 2007

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